

**Washington Occupational Injury and Illness Surveillance and Prevention Program**  
**Principal Investigator: David Bonauto, MD, MPH**  
**Washington State Department of Labor and Industries**  
**Safety and Health Assessment and Research for Prevention (SHARP) Program**

**Washington Fundamental Occupational Safety and Health Surveillance Program**

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**Annual Report of Accomplishments and Outcomes, July 1, 2011-June 30, 2012**

The goal of Washington State's fundamental occupational safety and health surveillance program is to enhance capacity to provide information for action to improve the occupational safety and health of Washington's 3.3 million workers working at any of the 160,000 employers within the state.

1. The Occupational Health Indicator data describes the occupational health status of the Washington State working population. Washington collaborates with other NIOSH funded states to publish the indicator data on the CSTE website. Publication of the collaborative datasets often lags the availability of the data for individual indicator completion.

Output: Washington State has accelerated the publication of the CSTE Occupational Health Indicator Data on the Washington State Department of Labor Website. We publish quarterly to semiannual web-based updates of the most current indicator data available for Washington State. The data updates are available at <http://www.lni.wa.gov/Safety/Research/Pubs/#Surveillance>.

2. The NIOSH-funded Washington State occupational health surveillance program has core expertise in using varied state-level data resources (e.g. workers compensation data, hospital discharge data) to respond to emerging hazards and data requests from employers, workers, and groups representing employer and employees.

Intermediate Outcome: With this capacity, we are able to respond to general requests for data from employers and workers in Washington State – over the project period, we provided data regarding injuries in the logging industry, specifically to private industry and public sector landowners who control approximately 80% of timber production. Currently, the injury rate and workers compensation premium rate (~\$18.50/hour) for those doing non-mechanized logging are unsustainable – the premium reflects a very high injury rate (e.g. the acute inpatient hospitalization rate is 4 per 100 FTE or 50x higher than the state fund average). The work with logging stakeholders could lead to possibly a significant impact from our surveillance programs.

Output: A peer reviewed publication of a descriptive analysis of Washington's work-related asthma surveillance program data from 2000-2008 has been published by the [Journal of Asthma](#).

3. Very little data are available to describe health and health behaviors of the workforce at the state level by the workers' industry and occupation of employment. Washington State has collected Industry and Occupation (I/O) data from 1997 through 2011 on the Washington State Behavioral Risk Factor Surveillance System (BRFSS). We have coded I/O for nearly 80,000 Washington State BRFSS respondents for the years 2003 – 2010.

Intermediate Outcome: Influenza is an infectious respiratory illness that is costly and associated with missed work and decreased work productivity; pandemic influenza has potentially profound effects on the workforce. Community-based surveillance of self-reported ILI on BRFSS began in September 2009 to assess the impact of the H1N1 Influenza pandemic. Washington State was able to partner with NIOSH to examine self-reported influenza-like illness (ILI) among Washington State workers by Industry and Occupation from BRFSS data. We produced a descriptive report

for NIOSH that concluded there was some variation in the prevalence of ILI across industry and occupation. A paper further describing and analyzing the distribution of self-reported ILI in Washington, and identifying occupations with increased risk of ILI, will be submitted for peer review publication. Preliminary data from this publication was presented at the CSTE national meeting in June as a poster (selected as a finalist for Outstanding Poster Presentation). Prevalence varied across occupations, and may be influenced by direct social contact, and/or fomite transmission (among other factors). This work with I/O coding has the potential to influence the collection of I/O data nationally.

- 'Janitors and Cleaners' and 'Secretaries' had an increased risk of ILI as compared to the overall prevalence and a reference group; while 'Truck Drivers' and 'Technicians, not elsewhere classified' had lower risk of ILI than other occupations that were analyzed.

Output: Mental health problems affect many employees' ability to work and live. A growing body of evidence suggests that mental disorders impair work performance, reduce productivity, increase absenteeism, and increase risk of injury. Given the high costs of depression in the workplace, accurate information about the prevalence of depression and characteristics of workers with depression has direct relevance for employers in planning policies for prevention and treatment. A peer-reviewed publication using BRFSS data showed considerable variance in the prevalence of current depression and frequent mental distress (FMD) across occupational groups.

- There was an observed 10-fold difference across 20 occupational groups in the prevalence of current depression. The prevalence of FMD also varied among the occupational groups, with a 3-fold difference. Overall, workers in Sales, Administrative Support, Services, and Machine Operator occupations, and Truck Drivers appeared to be at higher risk of having current depression. Services workers and Truck Drivers had higher risk of FMD, while Education/ Training/ Library/ Arts/ Entertainment/ Legal Services occupations had lower risk of FMD.

4. Hospitalized work-related burns and work-related amputations reflect sentinel injuries to identify high risk workplaces for occupational injury. Recent publications of our surveillance data for these conditions have generated interest from other researchers regarding the adequacy of data capture for their prevention of workplace injuries as well as from interested parties in industry.

Intermediate Outcome: In response to a partial solicitation by the editor of an Electricians' trade publication, we published an article based on our previous peer-review of the psychiatric sequelae of hospitalized work-related burns. This work highlighted our results that showed that workers burned by electricity were 7 times more likely to have mental health problems compared to workers burned from fire, chemicals or radiation. Publication in trade journals allows us to translate our research into meaningful information given directly to the workers most at risk.

#### **Publications:**

Anderson NJ, Reeb-Whitaker C, Bonauto DK. Work-related Asthma in Washington State, 2001-2008. *Journal of Asthma*. 2011. 48:773–782.

Anderson NJ, Whitaker C. Electrical burns and your mental health. *Electrical Source Industrial Power Systems Magazine*. May/June, 2012. Vol 8(3):30-33

Bonauto DK, Anderson NJ, Fan ZJ, Spann C. Self-reported Influenza-like Illness among Washington State Workers by Industry and Occupation of Employment; Behavioral Risk Factor Surveillance System, September 2009 – August 2010. (NIOSH Report)

Fan ZJ, Bonauto DK, Foley MP, Anderson NJ, Yragui NL, Silverstein BA. Occupation and the Prevalence of Current Depression and Frequent Mental Distress, WA BRFSS 2006 & 2008. *American Journal of Industrial Medicine*. 2012 (e-pub ahead of print).

Washington Fatality Assessment and Control Evaluation (FACE) Program  
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Annual Report of Accomplishments and Outcomes, July 1, 2011-June 30, 2012

The goal of the Washington State FACE program is to prevent workplace fatalities through surveillance, fatality investigations, and prevention activities.

## **1. Outputs: Improving Safety through targeted distribution of new WA FACE Materials**

**A. Prevention resources on the web:** Annually WA FACE develops new valuable prevention materials for employers, health and safety professionals, and workers. From July 2011 – June 2012, WA FACE created (see [www.lni.wa.gov/Safety/Research/FACE/default.asp](http://www.lni.wa.gov/Safety/Research/FACE/default.asp)):

- 9 Fatality Narrative (Construction (n=6), Agriculture (n=3)).
- 3 FACE Fatality Investigation Reports.
- 1 Annual Data Summary Report.
- 2 Hazard Alerts.

Each new construction and agriculture industry fatality narrative, fatality investigation report, and hazard alert contains incident-specific prevention recommendations and was distributed directly by email to subscribers. FACE maintains growing distribution lists for each of these products. From July 1, 2011 through June 30, 2012, there were 205,642 requests for FACE documents from the Washington FACE webserver. These data on webserver requests were obtained using new agency software and therefore cannot be reliably compared to previous years.

**B. Prevention resources targeting specific industries by trade journal:** WA FACE collaborated with industry trade associations to publish and distribute investigation findings and recommendations. These are effective methods to influence hazard awareness, safety training and practices, and safe product design. WA FACE successfully submitted findings and recommendations from investigation reports in the following trade journals:

- Cranes Today Magazine: Watch your Step, published May 21, 2012.
- Floor Covering Weekly: Carpet Installer Fall, to be published August 2012.

**C. Prevention resources targeting specific employers:** WA FACE utilized the WA State workers' compensation administrative database to target, identify, and disseminate products to employers at risk of specific hazards. WA FACE products mailed directly to employers:

WA FACE Fatality Narratives:

- 389 copies of "Painter Falls from Stepladder" mailed to employers in WA risk class-interior painting contractors.
- 413 copies of "Laborer Run Over by Reversing Dump Truck in Highway Work Zone" mailed to employers in WA risk class-Asphalt or concrete paving: Highway, street or roadway.
- 287 copies of "Framer Falls When Floor Section Collapses" mailed to employers in NAICS 238130-Framing Contractors.

WA FACE Investigation Reports:

- 557 copies of "Carpet Installer Dies after Falling 32 Feet at a Commercial Jobsite" mailed to employers in WA risk class-Floor Covering Installers.
- 131 copies of "Crane Operator Dies after Falling From Crane Turntable Deck in Washington State" mailed to employers in WA risk class-Mobile Crane and Hoisting Services.
- 131 copies of "Deck Engineer on Barge Dies When Struck by Crane Counterweight in Washington State" mailed to WA risk class-Mobile Crane and Hoisting Services employers.

#### WA FACE Hazard Alerts:

- 318 copies of “Bathtub Refinisher Deaths from Methylene Chloride” mailed to employers engaged in bathroom, tub, tile, porcelain, remodeling and refinishing.
- 265 copies of “Preventing Injuries and Fatalities Among Landscape Service Workers” in Washington State mailed to employers in WA risk class-Landscape Construction and Renovation.

**D. Prevention resources presented and distributed at conferences and meetings:** WA FACE products were distributed at several conferences and meetings where the potential for impact was high due to the large audiences of health and safety professionals and labor representatives. WA FACE products distribution at conferences and meetings in 2011-2012:

- Puget Sound Safety Summit: 7 meetings attended with approximately 3,200 FACE documents distributed.
- Construction Advisory Council: 2 meetings attended with approximately 1,100 FACE documents distributed.
- Seattle Vicinity Construction Safety Council: 3 meetings attended with approximately 250 FACE documents distributed.
- Build-it-Smart: 5 meetings attended with approximately 250 FACE documents distributed.
- Farm Bureau: 1 meeting attended with approximately 400 FACE documents distributed.
- Construction Safety Day: over 800 FACE documents distributed.
- Try-A-Trade-Day: over 350 FACE documents distributed.

## **2. Outcomes: Improving Safety through targeted use of WA FACE Materials**

### **A. Planned safety improvements by employers resulting from WA FACE**

**Investigation Report recommendations (Intermediate Outcome):** WA FACE sent investigation evaluations in the form of self-addressed stamped returnable postcards to employers. The objective is to solicit investigation-specific feedback from employers who do not receive FACE reports electronically and to assess the intended uses and impact of investigation recommendations on workplace safety. Employer feedback and potential impacts from WA FACE Postcard Survey, July 1, 2011-June 30, 2012:

#### **Carpet Installer Investigation Report-42 Responses:**

- 88% rated usefulness as good, very good, or excellent.
- 98% rated readability as good, very good, or excellent.
- 62% will distribute to employees/others.
- 59% will use to identify hazards.
- 57% will use for trainings/toolbox talks.

#### **Crane Operator Investigation Report-13 Responses:**

- 85% rated usefulness as good, very good, or excellent.
- 92% rated readability as good, very good, or excellent.
- 85% will use for trainings/toolbox talks.
- 54% will distribute to employees/others.
- 39% will use to identify hazards.

**B. Academic safety training resulting from WA FACE recommendations (intermediate outcome):** WA FACE collaborated with the University of Illinois NIOSH safety training program

to integrate WA FACE investigation reports as training tools. This integration impacts an audience of future safety engineers and professionals by exposing them to root cause and systems analysis applied to real-life incidents. The following describes the course, number of FACE documents integrated, and training methods utilized:

**Course:** Safety Engineering.

**Instructor:** Professor Steven Lacey, PhD, CIH, CSP.

**Composition:** 30 industrial engineering, engineering, and public health students each fall.

**Number of WA FACE Investigation Reports:** Approximately one report per week, for a total of 10-12 over the course of the semester.

**Integration method:** WA FACE investigation reports relevant to a topic covered are selected and distributed to students without the recommendations. After reading, students are assembled in small groups and asked to identify the root cause(s) and to develop prevention recommendations. The class then presents their recommendations and compares them with those developed by WA FACE.

### **C. Documented safety training, hazard assessment and abatement, and worker protection resulting from WA FACE recommendations (end outcomes):**

WA FACE narratives, investigation reports, and hazard alerts disseminated electronically are used predominantly by health and safety professional. They use WA FACE products to train and share with others, to raise awareness of specific job hazards, and to decide how to and what to use to make jobs safe. WA FACE web-based electronic survey allows for valuable feedback from FACE product users. The objective is to solicit feedback from users and to document the uses and impact of WA FACE products on workplace safety.

Results from WA FACE Electronic Feedback Survey, July 1, 2011-June 30, 2012:

Of 85 total respondents, 92% considered WA FACE products "Good to Excellent" resources.

#### **Overall opinion?**

<b>Opinion</b>	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very good</b>	<b>Excellent</b>	<b>Total</b>
Usefulness of materials	4	6	24	31	20	85
Readability of materials	2	1	21	30	26	80
Average %	3.6%	4.2%	27.3%	37%	27.9%	

#### **How used?**

#### **Have you made changes?**

<b>Use</b>	<b>Percent</b>	<b>Changes</b>	<b>Percent</b>
Personal awareness	61%	Identifying hazards	62%
Trainings or tool box talks	55%	Planning a job	29%
Distribute to employees/others	48%	Use of safety gear	29%
Post on bulletin board	27%	Setting up a job or work site	28%
Use of safety gear	23%	Procedures for completing a job	25%
Reporting hazards	14%	Choice or use of tools/equipment	15%

## Using Workers' Compensation Data to Identify High Risk Workplaces for Work-related Musculoskeletal Disorders (WMSDs)

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Project Coordinator: Daniel Hunter, MA, [hund235@lni.wa.gov](mailto:hund235@lni.wa.gov), (360) 902-6836

### Annual Report of Accomplishments and Outcomes, July 1, 2011-June 30, 2012

The overall goal of this project is to develop and test a surveillance system to identify prevention efforts for high hazard workplaces by industry sector and size for work-related musculoskeletal disorders (WMSDs) like carpal tunnel syndrome or tendonitis of the shoulder, hand/wrist, back, or knee. To this end, SHARP staff have:

- Characterized the magnitude and distribution of WMSD workers compensation (WC) claims frequency, incidence, and cost by industry and NAICS size;
- Conducted eighty (80) injured worker telephone interviews within ninety days of identifying compensable WMSD claims with four or more lost workdays;
- Conducted seventy eight (78) management and union/safety committee interviews among high and low incidence rate companies by industry group within each of seven NORA sectors regarding injury experience, WMSD risk factors, training, employment patterns, safety culture, and turnover to identify potential explanations for differences in WC claims rates; and,
- Conducted thirty four (34) paired employer site visits to high and low WMSD incident rate companies to identify potential differences in exposures, management culture, and safety issue awareness via site walkthroughs, worker observations, and job-based WMSD risk factor assessment.

## **Major Outputs**

### Company Site Visits for WMSD Risk Factor Assessment

- Having identified Washington businesses from seven NORA sectors with both upper and lower quartile incidence rates for WMSDs in one or more body regions (including back, shoulder, hand/wrist, and knee), SHARP staff have completed site visits to companies to conduct worker observations and job hazard assessments.
- To date, we have visited 33 companies including manufacturers in the plastics, metals, and wood industries, electrical contractors, nurseries and landscaping services, fruit growers, and community and nursing care facilities for the elderly.
- During these visits SHARP staff members have had the opportunity to consult with company representatives regarding various safety issues of specific interest to employers, and have discussed suggestions for reducing exposures to WMSD risks.
- For example, when working with a large electrical contractor, our ergonomists responded to an identified hazard and recommended adopting specific ergonomic equipment that would reduce exposure to risks for shoulder and wrist injury while also improving productivity and work efficiency.
- Additionally, our field teams have helped participating companies recognize and highlight individual workers' innovative solutions to potential hazards, encouraging safety representatives to disseminate these ideas as best practices throughout their broader worker population.

### Job Evaluation Reports

- Each company participating in site visits for WMSD risk factor assessment receives a customized job evaluation report for each job observed.
- These reports provide details regarding potentially hazardous risk factors and targeted recommendations for injury prevention as well as overall exposure assessments including instances where jobs may currently meet or exceed industry best practices.
- Reports are generated directly from data gathered using the handheld digital checklist, and serve to supplement companies' existing safety programs with objective findings from professional occupational health experts.

- A color coded quick reference page helps employers quickly identify jobs with potentially hazardous risk factors.

#### Presentations and papers

- To date, Dr. Silverstein has presented the methods and some very preliminary results to:
  - University of Washington Department of Environmental and Occupational Health Sciences faculty and students (April 2012)
  - International Ergonomics Association International Conference in Brazil (February 2012)
  - International Conference at the Indian Institute of Technology Madras (IIT Madras) in Chennai India (December 2011)
- None of these conferences were paid for by grant money.

#### Potential Outcomes

##### Digital Risk Factor Assessment Checklist App

- Risk factor data from company site visits are collected using a novel electronic checklist application developed for this purpose by SHARP staff and deployed using a small hand-held touch screen tablet.
- The checklist app affords the unique ability to observe, enter, calculate and analyze data seamlessly in the field, and allows ergonomists to identify and report potentially hazardous risk factors in real time.
- Software incorporates major evaluative components of several validated assessment methods including the Washington State Department of Labor and Industries' Caution Zone Checklist, the Washington State Hazard Zone Checklist, the Strain Index method, as well as the Quick Exposure Check (QEC) method.
- With the rise in handheld digital computing, we anticipate that this electronic WMSD hazard checklist will find traction throughout industry with a broad user base among regional and national occupational health professionals interested in identifying and mitigating high-risk job tasks.

##### Injured Worker Interviews

- During our conversations with injured workers, we have gathered substantial evidence of the personal toll of WMSDs on the lives of both the injured and their families.
- Navigating a workers' compensation system can be overwhelming, and we believe this body of personal testimony will serve as an impetus for action—for employers, health professionals, and insurance providers—to ensure injured workers' successful return to the workforce.

## **NORA Surveillance Projects (TIRES)**

### Trucking Injury Reduction Emphasis through Surveillance (TIRES) Program

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Co-program Director: Dr. Barbara Silverstein, silb235@Lni.wa.gov, (360) 902-5668

### **TIRES: Annual Report of Accomplishments and Outcomes, July 1, 2011-June 30, 2012**

The Washington State trucking industry has some of the highest costs and rates for work-related injuries, however very little is being done to address injuries other than those caused by motor vehicle collisions. Previous research by Washington State Department of Labor and Industries, SHARP Program revealed that the most common and costly injuries in trucking are musculoskeletal disorders, falls, motor vehicle collisions and injuries from being struck by or against an object. SHARP determined from the case follow-up surveillance data of the first TIRES grant that these injuries occurred during four particular work activities: loading and unloading activities including manual handling, securing the load, entering and exiting the cab, and walking around the job site. Determining the root cause of injuries developed during these job activities and producing useful safety materials to prevent them is the continuing mission of TIRES.

### **Outputs**

TIRES developed educational materials to meet the needs of industrial safety personnel in the field. For the period from July 1, 2011 to June 30, 2012, these include:

- **Online simulation training tool** - Interactive, educational resource to be used by drivers and training personnel, uses different tarping scenarios to demonstrate safest tarping options. Produced 2 versions, 1 holiday with Santa, 1 with regular truck driver.
- **TIRES E-news electronic newsletter** - Introduces and educates managers and safety personnel on the magnitude of specific injury types. 11 produced.
- **True story narratives** – Actual stories of Washington workers injured on the job. Includes injury prevention tips. 8 produced.
- **Tip sheets** – Injury prevention tips for specific scenarios. 7 produced.
- **Posters** – Eye catching and educational posters for employee awareness. 9 produced.
- **Trade journal article** – Williams, J. Kim, H. [\*Don't Jump!\*](#) Published in Transport Topics Online, November, 2011.
- **YouTube video** – Risky vs. Safe Exit strategies. 2 produced.  
<http://www.youtube.com/watch?v=vEIXlrU3Jew&feature=plcp>
- **Website** - We have produced and continue to build on an interactive website where industry stakeholders can download free educational materials or share their own success stories.  
[www.KeepTruckingSafe.org](http://www.KeepTruckingSafe.org).
- **Social media** - We have expanded marketing and outreach into social media tools such as Twitter, YouTube and the TIRES Blog.
- **Brand recognition** – TIRES participates in industry events such as the World's Largest Truck Convoy to benefit the Special Olympics and the Washington Truck Driving Associations' Truck Driving Championships.

### **Outcomes (Potential)**

Leveraging social media - Our Twitter account was launched on October 20, 2011. We currently have 255 followers. On a typical day, our Twitter account reaches over 7,000 users in a four hour period. A YouTube training video was released on November 1, 2011 that was viewed over 1,500 times. Sixty-two blog articles were written since November 1, 2011 and viewed over 800 times.

### **Outcomes (Intermediate)**

TIRES educational materials are being used by occupational safety and health professionals within the industry. During the period from July 1, 2011 – June 30, 2012 there have been over 126,000 downloads of our TIRES educational materials. The online simulation tools were downloaded more than 16,500 times.

TIRES training materials caught the attention of the Washington Teamsters Training Coordinator who subsequently applied for and received a grant through the Washington State Safety & Health Investment



Projects to develop a train-the-trainer program for the trucking and construction industries. TIRES training materials are incorporated as a major part of the training.

TIRES has been contacted by other states' (AL, MT, and even Canada) workers' compensation programs to partner with TIRES to develop additional training materials and to use the materials already developed. Trucking injuries are similar across the globe so by sharing data and strategies, we've collaborated to make our materials even better.

### **Plans**

TIRES is responding to stakeholder feedback by continuing to produce safety materials and online training simulations. Truck drivers tend to be visual learners and we have had many safety directors contact us with ideas for more simulations. Over the next year, TIRES will continue to use social marketing tools such as a TIRES safety blog, Twitter and YouTube training videos. Additionally, we will continue to use traditional outreach methods by publishing results and safety information in trade journals and by participating in Washington trucking events. Additionally, our Safety Program template will be completed for use by small trucking companies.

## **NORA Surveillance Projects (Temps):**

### **Injury Reduction Among Temporary Workers in Washington State through Surveillance**

Program Director: Michael Foley, MPA, folm235@Lni.wa.gov, (360) 902-5429

**Temps: Annual Report of Accomplishments and Outcomes, July 1, 2011-June 30, 2012**

**Major Accomplishments:** The first two aims of the projects are the following:

**Aim #1:** Characterize the magnitude of workers' compensation claims incidence among workers employed by temporary agencies grouped by industry sector, as represented by risk class, and compare to that of workers employed under standard employment arrangements working in comparable industries and occupations.

#### **Research Findings:**

- For the most recent five-year period we have compared accepted claims rates, time-loss claims rates, claim rejection rates, average lost workdays per claim, claim costs and frequency of employer protest between each of twelve temporary risk classes and their selected comparable permanent risk classes. The results continue to show a significant discrepancy between temporary workers and their standard-employed counterparts, with temporary workers having higher injury rates and more lost workday rates. The greatest discrepancy in injury rates between temporary workers and their permanent counterparts are in the following industry sectors: machine operation, vehicle operation, construction, agricultural services and food service. Only in two sectors, healthcare and warehousing services, was the injury rate for temp workers lower than that for permanent workers.
- Other differences between temporary workers and their matched permanent counterparts which may be related to increased probability of injury include:
  - Median age at injury for temporary workers is 4 years younger than for permanent workers.
  - Gender distribution for temp workers is 74% male versus 59% male for permanent workers.
  - Median number of days on the jobsite for temp workers is 80% shorter than that of permanent counterparts.
- Severity of injury may be greater for temporary workers: the median number of time loss days for temps is 21% greater than it is for matched permanent workers. This may also reflect greater difficulty in managing the return to work process for injured workers without a regular relationship to a particular workplace
- The distribution of injuries by injury type (e.g. struck by; falls; caught in, etc.) is very similar to that of matched permanent workers.

**Aim #2:** Conduct 80 follow-up interviews per year with temporary workers and a matched set of standard workers to gain information about tasks, hazards, safety training, and ability to identify and report hazards.

#### **Research Findings:**

- To date we have conducted 170 follow-up interviews with temporary workers and their matched standard-employment counterparts. Of this number, 140 were conducted in the past year. To date, we have completed 35 complete sets of case-control matched interviews. This includes 3 interviews with matched permanent workers for every completed interview with a temporary worker.
- Based upon the 35 completed matched sets of interviews we can report some preliminary findings:

- A substantially higher percentage of temporary workers say they were not asked about prior skills or experience before beginning a new job assignment. (47% vs 25%)
- A higher percentage of temporary workers report receiving no safety training from their jobsite employer. (33% vs 12%)
- Temporary workers rate the quality of safety training received as lower than that of permanent workers.
- Temporary workers report a greater decline in their self-assessed health than do permanent workers from the period prior to starting their job of injury and the present.

**Washington Occupational Injury and Illness Surveillance and Prevention Program**  
**Washington State Department of Health (DOH)**  
**Pesticide Illness Monitoring and Prevention Program**

Maintaining and Improving Pesticide Illness Surveillance in Washington State  
Project Director – Joanne Prado, joanne.prado@doh.wa.gov, (360) 236-3172

**Annual Report of Accomplishments and Outcomes, July 2011-June 2012**

The goal of this project is to prevent pesticide illness in Washington State through illness surveillance, case investigation, and public health actions.

**Major Accomplishments**

Improvements to the existing illness surveillance system, including the implementation of a new database were realized during this project period. Our program coordinated with community advocates, growers, and state agencies on policy recommendations to prevent agricultural pesticide drift. We contacted the manufacturer of a product of concern, and discussed improved product labeling with them and with regulatory agencies. We worked with NIOSH and other SENSOR-Pesticide states to publish articles and we presented findings from our data at public education and worker training events.

Outcomes attached to three specific aims of the project follow:

1. Gain knowledge about pesticide illness through investigating illness reports and contribute information to national aggregate data managed by NIOSH.
  - a. **Output: Ascertained and investigated cases.** From July 1, 2011-June 30, 2012 Washington State DOH Pesticide Program staff reviewed more than 1000 reports of illness and opened 201 investigations.
  - b. **Output: Provided NIOSH data** for all investigations involving pyrethrin/pyrethroid pesticides that resulted in plausible illness that were investigated by DOH Pesticide Program from (2000-2010).
2. Improve identification and documentation of occupational pesticide poisoning, including antimicrobial illness cases.
  - a. **Potential Outcome: Improved case ascertainment** of occupational illness reports and follow-up investigation of selected illness cases. A data sharing agreement was completed and has been implemented. Agreement allows two DOH Pesticide Project staffs to directly access medical records of workers who sought medical care in Washington State for pesticide illness. The results are improved investigation completeness and investigator time saved.
  - b. **Potential Outcome: Conducted records review of antimicrobial illness reports.** Identified key occupations and industry groups to explore for inclusion in our illness surveillance system.
3. Apply findings from pesticide illness surveillance to prevention, education, worker training, informing legislative and regulatory actions, and contributing to scientific publications and meetings.
  - a. **Intermediate Outcome: Addressed WA State Legislature committee work session about agricultural pesticide drift.** Prepared charts of agricultural drift illness cases, and summarized investigation results for the committee. Reviewed legislative bills drafted with the intent of preventing agricultural pesticide drift and provided feedback to bill developers. We met often with farm worker and grower advocates and other involved agencies, to discuss legislative and other strategies to prevent agricultural pesticides from drifting onto workers and other bystanders.
  - b. **Potential Outcome:** Illnesses involving a pesticide product that contains dichlorvos, an organophosphate insecticide, were identified through pesticide illness surveillance. After reviewing product labels, recommended product labeling changes to product manufacture, and discussed health issues with WA Department of Agriculture, and the Environmental

Protection Agency. Developed background materials for stakeholders and published website about the product for the public.

**c. Output: Presentations**

Pesticide Recertification Classes, March 2012-May 2012

Presentation by Luis Rodriguez – “Contributing Factors of Pesticide Illness in Farm workers” (presented in Spanish and English)

Presentation by Luis Rodriguez – “Issues of Equipment Calibration” (presented in Spanish and English)

Helena Chemical Spring Forestry Meeting, February 2012

Presentation by Joanne Prado – “Case Studies of Illnesses Associated with Pesticide Application to Forest Lands”

NIOSH SENSOR-Pesticides Winter Meeting, January 2012

Presentation by Jennifer Sievert – “Poison Control Center Data and “Unrelated” Cases”

Recertification Class for Landscapers, November 2011-December 2011

Washington State University, Green Gardening Program

Presentation by Jennifer Sievert – “Pesticides for Urban Landscapes and Worker Safety” (presented in Spanish and English)

Washington State Annual Joint Public Health Conference, October 2011

Poster: Agricultural Pesticide Drift and Acute Pesticide-Related Illness

**d. Output: Publications**

“Occupational Phosphine Gas Poisoning at Veterinary Hospitals from Dogs that Ingested Zinc Phosphide-Michigan, Iowa, and Washington, 2006-2011,” *Morbidity and Mortality Weekly Report*, April 27, 2012; Vol. 61 No. 16.

“Exposure to Zinc Phosphide Sickens Washington Technician – What You Should Know,” Washington State Veterinary Medical Association electronic newsletter *Sparks*, September 2011, <<http://wsvma.org/displaycommon.cfm?an=1&subarticlenbr=457>>.

Lee SJ; Mehler L; Beckman J; Diebolt-Brown B; Prado J; Lackovic M; Waltz J; Mulay P; Schwartz A; Mitchell Y; Moraga-McHaley S; Gergely R; Calvert G. “Acute Pesticide Illnesses Associated with Off-Target Pesticide Drift from Agricultural Applications: 11 States, 1998-2006,” *Environmental Health Perspectives* Vol. 119, No. 8; August 2011.

Kasner EJ; Keralis JM; Mehler L; Beckman J; Prado JB; Lee SJ; Diebolt-Brown B; Mulay P; Lackovic M; Waltz J; Schwartz A; Mitchell Y; Moraga-McHaley S; Roisman R; Gergely R; Calvert GM, “Gender Differences in Acute Pesticide-Related Illnesses and Injuries Among Farm workers in the United States, 1998-2007,” *American Journal of Industrial Medicine*, Vol. 55, Issue 7, July 2012, pp. 571-583.